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in Texas: A case report

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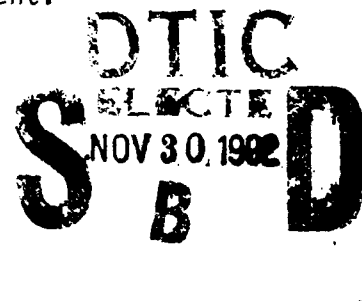
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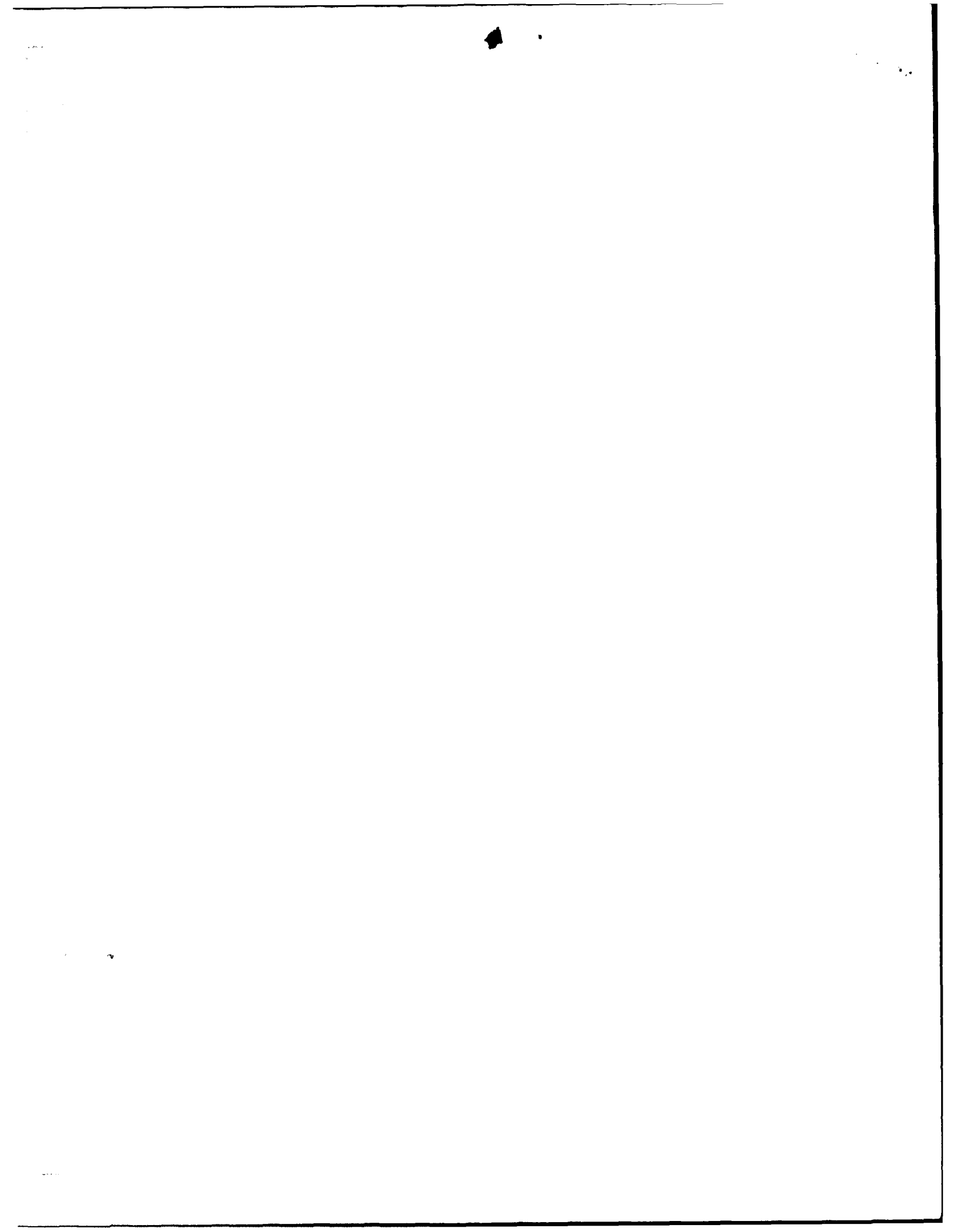
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Insecta, Megaselia, myiasis



Facultative Myiasis by *Megaselia* sp. (Diptera: Phoridae) in Texas: A Case Report

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ABSTRACT Facultative myiasis caused by larval *Megaselia* sp. is reported in a human in Texas. On two occasions during 24 h, the youth experienced a "crawling sensation deep in [his] throat" which caused him to cough, expelling a living *Megaselia* sp. larva. The site of the infestation was presumed to be the sinuses or upper respiratory tract. The symptoms resolved upon expulsion of the larvae, and no additional complications were observed in the patient.

KEY WORDS Insecta, *Megaselia*, myiasis

HUMAN MYIASIS caused by species in the family Phoridae has been reported only rarely in the United States. Biery et al. (1979) reported single cases of cutaneous and vaginal myiasis caused by phorid larvae in Texas. We describe herein a recent case of myiasis caused by phorid fly larvae in Texas.

Case Report

On 7 June 1990, a 17-yr-old Hispanic male reported to a U.S. Air Force Hospital in San Antonio, Tex., after having coughed up some "worms." The day before presentation, the patient was playing a trombone when he experienced a "crawling sensation deep in [his] throat" which caused him to cough, expelling at least one living larva. Because he was uncertain of the larva's origin, the patient cleaned his trombone but found nothing unusual. The following day, the patient again experienced a crawling sensation in his throat while playing his trombone and subsequently coughed up another living larva. Following the second episode, he reported to the adolescent clinic for medical evaluation and presented two larvae to the attending physician. The larvae were forwarded to the Medical Entomology Section, U.S. Air Force School of Aerospace Medicine, Brooks Air Force Base, Tex., for identification.

The patient had been treated 1 wk earlier with amoxicillin (250 mg three times daily by mouth

for 10 d) for cough, congestion, and rhinorrhea. Those symptoms resolved in 2-3 d, before he coughed up the larvae. The patient had a history of asthma and allergic symptoms requiring multiple medications (Slobid, Seldane, Proventil MDI, Beconase AQ Nasal) but was noncompliant at presentation. There was no history of fever, vomiting, diarrhea, constipation, unusual skin rashes, or recent travel outside his home town of San Antonio.

Physical examination of the patient revealed no apparent abnormalities except for mild atopic dermatitis and mild forced expiratory wheezing. A chest radiograph and sinus series revealed no apparent abnormalities. The patient was treated with an anthelmintic (Vermox, 100 mg twice daily by mouth for 3 d) pending identification of the organism and was instructed to resume his prescribed medications. Stools for ova and parasites were requested but not received from the patient. At follow-up 1 wk later, the patient had expelled no more larvae and was asymptomatic.

Discussion

The two larvae were alive when they were received at the hospital parasitology laboratory but died before they were received at the medical entomology section, precluding rearing to the adult stage. They were identified as *Megaselia* species, probably *scalaris* (Loew). The specimens were retained in the medical entomology section reference collection at Brooks Air Force Base.

Megaselia spp. previously have been documented to cause human myiasis. *M. scalaris* caused two recent cases of urogenital myiasis in India (Singh & Rana 1989) and in Malawi (Meinhardt & Disney 1989). Patton (1922) reported a case of ophthalmic myiasis caused by *M. scalaris* larvae infesting a

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diseased cornea. *M. scalaris* is a nearly cosmopolitan species whose larvae have been reported from a wide range of habitats. In Japan, a urogenital case was caused by *Megaselia deningi* Disney, a species naturally occurring in pitcher plants and the internode waters of giant bamboos (Disney & Kurahashi 1978, Disney 1991). Biery et al. (1979) reported cutaneous and vaginal myiasis caused by *Megaselia* sp., probably *scalaris*, in Texas. A review of the medical entomology section reference collection revealed two *Megaselia* sp., probably *scalaris*, larvae collected in a nasal aspirate sample taken from a 2-yr-old child at a hospital in Bay County, Fla., on 26 August 1982. Although myiasis caused by phorids usually appears to be relatively benign, one pulmonary case in Japan caused by *Megaselia spiraculis* Schmitz resulted in severe symptoms that required extensive treatment (Komori et al. 1978).

Adult phorid flies are very small (2–4 mm in length), and some species are associated with decaying organic material. These females are attracted to strong or foul odors and lay their eggs in a variety of media including fruits, stale meat, excrement, and carrion (James 1947). The flies infesting the patient probably originated from a natural population near his home in an urban residential area. During 1990, phorids frequently were collected in large numbers in industrial areas of an Air Force base in San Antonio (unpublished data).

Larval *Megaselia* spp. are small (1–5 mm in length), are truncately rounded posteriorly, and have broad processes on the terminal segment. A sclerotized internal cephalopharyngeal skeleton can be seen under low magnification, and the mouthhooks are very small. Because of the reduced sclerotization, larvae would be inapparent upon routine x ray examination. The size and condition of the larvae recovered from the patient in the present study indicated that they were mature and may have been seeking a place to pupate. In Phoridae, the total development time is a function of temperature. Some reported times for the larval stages of *M. scalaris* are 19.7 d at 15°C, 10.6 d at 20°C, and 7.3 d at 25°C (Prawirodisastro & Benjamin 1979); 5–7 d for females and 4–6 d for males at 27°C (El-Miniawi & Moustafa 1965); and 5–9 d at 26–28°C (Tumrasvin et al. 1977). Patton (1922) gave the total development time as 21–27 d at 18–20°C. At 32°C, a mean total development time of only 13.5 d has been reported, with the pupal period representing 7.3 of these days (Trumble & Pienkowski 1979). At the temperatures experienced in this case report, the egg through larval stages are likely to have required a maximum of only 6 d.

The inhalant dispenser used by the patient was examined and was determined to be free of larvae. Questioning the patient revealed no definite source of infestation. Because of their larval habits, it was unlikely that mature larvae were aspirated or in-

gested by the patient. The route of infestation was not likely to have been through inhalation of airborne eggs or a gravid fly; more probably, a fly oviposited on or in the patient's mouth or musical instrument. The patient's history of asthma and allergies, frequently associated with "mouth-breathing," may have increased the opportunity for oviposition or the inhalation of eggs or a gravid fly, as would the deep aspirations associated with playing the trombone. Because the adult flies are very small, they easily could be inhaled without being noticed. Facultative myiasis of the sinuses after aspiration of insect eggs has been reported (Hurd 1954), although no phorid larvae were reported in that case. One case of pulmonary myiasis after the presumed aspiration of a fly or eggs has been reported (Komori et al. 1978). Ingestion of eggs or larvae most probably would have resulted in intestinal myiasis; the patient exhibited no symptoms of an intestinal infestation. His symptoms of cough, congestion, and rhinorrhea experienced 1 wk before the first instance of larval expulsion were suggestive of an allergic reaction to a foreign matter and may have marked the initial sensitization to fly material.

Myiasis caused by phorid larvae may be relatively benign as in this case, except for the revulsion and anguish felt by the patient. Benign phorid myiasis may be underreported because of the small size of the larvae and the lack of serious long-term complications from infestation.

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